USGS

WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2006AK51B

Title: Investigation of Streamflow Response to Seasonal Snowcover Change in the Yukon River

Project Type: Research

Start Date: 03/01/2006

End Date: 02/28/2009

Congressional District: AK

Focus Categories: Geomorphological Processes, Hydrology,

Keywords: discharge, climate, snowcover, and permafrost

Principal Investigator: Yang, Daqing

Federal Funds: $25,129

Non-Federal Matching Funds: $7,259

Abstract: The Yukon is one of the largest rivers in the northern regions. It contributes 203 Km^3/year of freshwater to the Bering Sea. Hydrologic conditions and their changes in the Yukon River significantly affect regional biologic and ecologic systems. Snowcover is one of the critical land memory processes that significantly impact atmosphere, hydrology and ecosystems in the high latitude regions. Snowcover melt and associated floods are the most important hydrologic events of the year in the northern river basins. Our current understanding of Yukon River hydrology and climate changes, particularly large-scale snowmelt processes and their interaction with climatic change and variation, is incomplete. This limits our capability to document past change and to predict future change over this largest watershed in Alaska. This research will apply remote sensing and in-situ snowcover data and products for snowcover and snowmelt runoff analyses over the Yukon watershed. The focus is to examine the streamflow response to snowcover change during the spring melt season, and to determine the potential of using remotely sensed snowcover information to improve our capability of snowmelt runoff modeling and forecasting over large northern regions.